

RESULTS OF THE 1968 AVIL EXPEDITION TO
MT. NYIRU, SAMBURU DISTRICT, KENYA.
ORNITHOLOGY

By

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ABSTRACT: The 1968 Avil Expedition was organized, sponsored, and led by Mr. and Mrs. Gordon Avil, to make the first comprehensive survey of the bird life of the montane forest on the upper stretches of Mt. Nyiru, northern Kenya. Some 300 specimens of 80 species were obtained, of which 29 species were taken in, or at the edge of, the montane forest, the rest being from the lower slopes of the mountain. Previously less than a dozen kinds of birds had been recorded from Mt. Nyiru, and most of these were not forest species from the top of that mountain. The present data on the Mt. Nyiru avifauna are compared with those of Kulal and Marsabit. All specimens collected by the Avil Expedition are in the Los Angeles County Museum of Natural History.

The 1968 Avil Expedition of the Los Angeles County Museum of Natural History had as its goal the ornithological exploration of Mt. Nyiru, Samburu District, Northern Frontier Division, Kenya. The extensive montane forests of this isolated mountain range had not been investigated systematically prior to our work there in 1968. The 1966 Cheney Expedition (Friedmann and Stager, 1967) worked at the west base of the mountain but did not have the time or opportunity to attempt a faunal survey of the extensive forest on the upper portions of Mt. Nyiru. The desirability of such a survey was obvious, but its realization had to be postponed for another trip.

Mr. and Mrs. Gordon Avil learned of this desire and in 1968 they generously sponsored and accompanied the expedition that resulted in the collections reported on in this paper.

The expedition departed from Nanyuki, Kenya, on June 1, 1968, and traveled northward into the Samburu District, Northern Frontier Division, by way of Rumuruti, Maralal and Baragoi. Base camp was established June 2 at Tum (5240 feet [1588 m.] elevation), at the west base of Mt. Nyiru (Fig. 1). The camp site was the same one occupied by the 1966 Cheney Expedition (Friedmann and Stager, 1967). Collecting in the Tum area began on June 3 and continued until June 8. During this period an unused trail up the west face of Mt. Nyiru from Tum was cleared by the Samburu, to enable our donkey pack train of 30 animals to move our camp and supplies to the mountain forests atop Mt. Nyiru. The move to the top was accomplished on June 8 and 9,

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with collecting in the mountain forests atop Nyiru beginning on June 10. The mountain top camp was situated in the forest at the edge of a grassy glade approximately one mile east of the west rim of Mt. Nyiru and at an elevation of 8400 feet (2545 m.). Collecting continued through June 21. On June 22, the expedition returned to the base camp area at Tum where collecting operations continued until June 27. The return to Nanyuki began on June 28 and Nairobi was reached on July 1, 1968.

Expedition personnel consisted of Mr. and Mrs. Gordon Avil, sponsors; Kenneth E. Stager, ornithologist; Peter Saw, professional hunter (Monty Brown Safaris), and his safari staff of thirteen men; Julius Ithia and Julius Kyongo, professional bird skimmers trained by John G. Williams.

The Museum is glad to make grateful acknowledgment to the generous

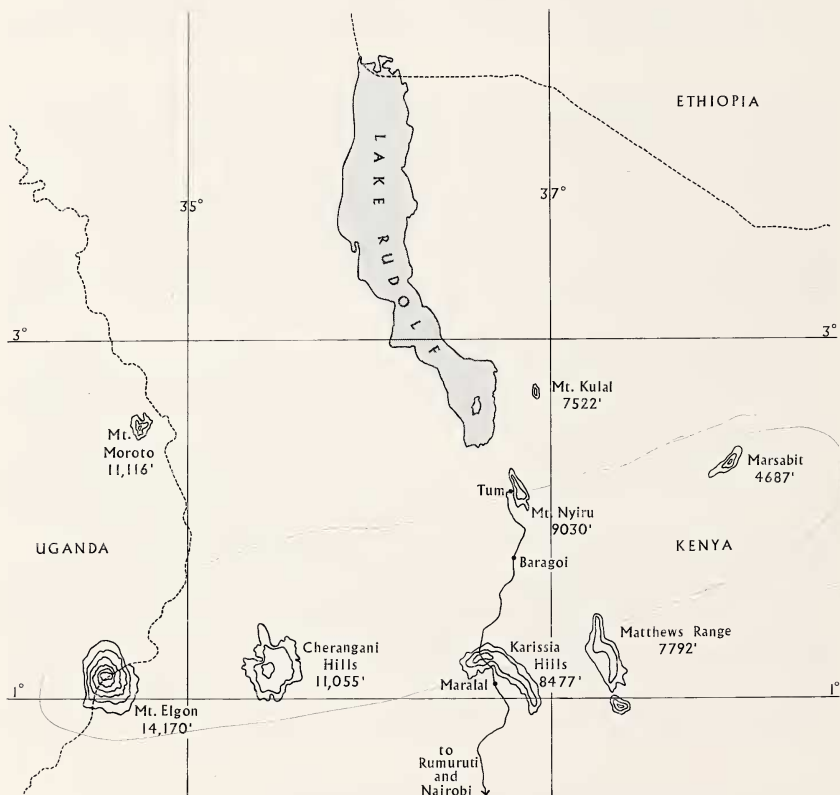


Figure 1. Map of northern Kenya area, showing area visited by the Avil expedition.

sponsors of the expedition, Mr. and Mrs. Gordon Avil of Beverly Hills, California. Not only did Mr. and Mrs. Avil make the trip possible through financial support and actual participation in the field work of the expedition, but also generously provided the funds necessary for the publication of this report on the work accomplished.

Thanks are also due Chief Game Warden of Kenya, Mr. Nicholas Nganga and his assistant, Mr. Stan Bleazard, for the granting of official permits necessary for the accomplishment of our study. Special thanks are due Major Rodney T. Elliott, Divisional Game Warden, Northern Frontier Division, Maralal, for his hospitality and assistance to the expedition while it was working in his administrative area. For informing us of some unpublished observations on Kulal and Marsabit birds we express our thanks to G. Stuart Keith and John G. Williams. During the course of the study of the specimens, we received kind cooperation and assistance from M. A. Traylor of the Field Museum of Natural History, and R. Zusi of the National Museum of Natural History.

The senior author is responsible for the general discussion of Nyiru and other north Kenyan montane forest avifaunas, and for the identifications and systematic notes. The junior author made the collection, supplied the field notes and the photographs, and the description of the area. Museum artist Mary V. Butler made the illustration (Fig. 8) of *Nectarinia reichenowi*.

In the semi-arid stretches of northern Kenya, east of the Rift Valley, from about the second parallel of north latitude, north to the Abyssinian border, there are three isolated mountains that are crowned with extensive montane forests—Nyiru, Kulal, and Marsabit. Mt. Nyiru is the southernmost of the three, $2^{\circ} 11' N$, $36^{\circ} 49' E$, and rises from a base plain of about 5000 feet (1515 m.) to an elevation of a little over 9000 feet (2727 m.). Kulal is about 40 miles (667 km.) to the north and very slightly to the east, $2^{\circ} 44' N$, $36^{\circ} 56' E$, and is not nearly as high, its summit being about 7730 feet (2342 m.). Marsabit, the most isolated of the three, lies at $2^{\circ} 16' N$, $37^{\circ} 57' E$, approximately 80 miles (134 km.) to the east of both. It is the lowest of the three; its greatest elevation is a little under 4700 feet (1424 m.) and its base plain is lower than that of Nyiru, about 2200 feet (667 m.).

Geographically the closest montane forest to the south of Nyiru is the Matthews Range, about 50 or 60 miles (84-100 km.) away. A much broader gap of at least 200 miles (334 km.) separates these north Kenyan mountains from the southernmost of the forested highlands of Ethiopia, to the north. Mt. Nyiru is an old and isolated mountain quite as separated from the Matthews Range to the south as it is from Kulal to the north and from Marsabit to the east. So far as is known, its past history is probably similar to that of these other two mountains. Moreau (1966: 191-192) has stated that a small number of montane forests on isolated mountain tops today were probably isolated as well during past glacial periods, but we do not know if he had any data on Nyiru to cause him to ignore it when he concluded that of these areas, only two—Kulal and Marsabit—were isolated by as much as 30 miles (50 km.) of

arid, low veldt, in which the forest dwelling montane species could not live. The isolation of Nyiru is just as great, and the altitude to which it rises from the base plain is even higher. It is clearly to be considered along with Kulal and Marsabit. The only explanation we can suggest for Moreau's apparent ignoring of Nyiru is that he may have considered it not as the isolated mountain that it is, but as the northern extremity of the Matthews Range.

The bird life inhabiting these montane forests is mostly quite distinct from that of the lowland forests on the lower slopes of these mountains, or of the intervening, generally non-forested, semi-arid country, although there are some birds that inhabit both. However, it does seem proper to look upon these highland sylvan avifaunas as isolated ecological entities. At the same time, it would seem that their component species must be colonizers that reached each mountain by individual flights, and not as a result of any mass alterations of the topography or ecology of the entire area. They are not relict patches of a once more extensive continuum of montane forest fauna. The birds may still recolonize these areas by such flights from time to time. The avifauna of each of these three mountain forests is depauperate, and with little racial endemism, as might be expected if recolonizing were taking place with any frequency.

Until now the avifauna of Marsabit was the best documented of the three, with numerous records of individual species listed by van Someren (1922, 1932), Sharpe (1930), Jackson (1938), and Moreau (1966: 194-195). Moreau very properly differentiated the montane forest records from the large number of species listed by the others as from "Marsabit" and this reduced the number he considered pertinent to only seven species, all but one of which (*Onychognathus walleri*) are represented in our present Mt. Nyiru collection. Moreau's list is not quite complete, as he states that the dove *Aplopelia larvata* does not occur on Marsabit; but it is so recorded by Sharpe (1930) and Jackson (1938). While Moreau does not include *Tauraco hartlaubi* in his Marsabit list, he does mention it as having been alluded to rather than precisely recorded from there by van Someren. In his unpublished data on the birds of Marsabit, Stuart Keith did not include this bird from the Marsabit uplands, although he did note it on Kulal. This tends to corroborate Moreau's skepticism of the occurrence of this conspicuous bird in the montane forest on Marsabit.

The avifauna of the Kulal montane forest, said to cover some 40 square miles, is very imperfectly known, the only data in print being the information assembled by Moreau (1966: 195) from unpublished specimen and sight records of a small number of species supplied him by J. G. Williams and G. S. Keith. Moreau does not state how many species have been found there, but lists only seven that, to his current knowledge, do not occur on Marsabit. Of these seven, all but two (*Aplopelia larvata* and *Andropadus tephrolaema*) are represented in our present collection from Mt. Nyiru.

Prior to the collection reported on in the present paper, the bird life of Mt. Nyiru was known from published records of some 11 species listed by

Jackson (1938), and some of these, such as *Mirafra cantillans marginata*, *Phylloscopus trochilus trochilus*, *Cisticola juncidis perennia*, and *Spinus cinerelloides kikuyuensis* are not forest birds. Of the remaining seven, Jackson gives no indication as to whether they were taken in the true montane forest at the top of the mountain or in the wooded areas around its base. However, all seven are also included in our present collection and it may be assumed that Jackson's records came from similar habitats as our 1968 examples.

As is so often the case, there are in the literature references to specimens pertinent to our present study, hidden in the discussion of relatively irrelevant populations. As an example, van Someren (1939: 76), in discussing the birds of the Chyulu Mountains in southern Kenya, mentions that *Turdus olivaceus polius* (= *T. abyssinicus abyssinicus*) occurs at high elevations on Marsabit, Kulal, and Nyiru, but fails to list either his specimens or his sources. We have tried to compile such casual references, but cannot be certain that we found them all.

The present collection contains 300 specimens of 80 species. Of these 80 kinds of birds only 29 were taken on the top of the mountain, in, or at the edge of, the montane forest, and these are the birds of particular interest, as they give us the information with which meaningful comparisons may be made with the corresponding montane avifauna on Kulal and on Marsabit. Even of these 29, five (*Indicator variegatus*, *Cossypha caffra iolaema*, *Corvus rhipidurus*, *Corvus albicollis*, and *Laniarius ferrugineus ambiguus*) are not peculiar to montane forests, but have a wide ecological range.

The other 51 species were taken chiefly on or near the lower slopes of Mt. Nyiru, and all but a very few of them had previously been collected by Stager in the same area in 1966 while on the Cheney Expedition to the Samburu District. These species call for little comment, beyond listing the specimens with localities and dates, plus Stager's field observations. Users of this paper might therefore be advised to consider this part of it as a supplement to the one by the present authors (1967) on the Cheney Expedition. To expedite this usage, the nomenclature of the present report has been kept uniform with that of the earlier one, and, in the few instances where change has seemed called for, this is explained in the accounts of the species involved.

If we combine the Kulal and Marsabit montane forest records available in print with those kindly supplied by John Williams and Stuart Keith, and correlate with them the Mt. Nyiru data from the present collection, we may indicate the state of present knowledge of the similarities of the avifaunas of these three highland forests in the following table. It should be kept in mind that the apparent relative richness of that of Mt. Nyiru may be due to the fact that we now have a good collection from that mountain, while equally comprehensive samplings are still to be made on the other two. If anything, the higher altitude of Mt. Nyiru would lead one to suspect that it had a more restricted, rather than a richer, fauna than Kulal or Marsabit. This thought can-

not help but qualify the appropriateness of extracting significance from the present data.

A few points may, however, be mentioned. The absence of records of brightly colored, easily recognized species such as *Nectarinia reichenowi*, *Nectarinia famosa*, and *Cryptospiza salvadorii* from Kulal and Marsabit and their abundance on Nyiru does suggest distributional divergence in each case. As indicated in the text of this report, a few instances of racial endemism do occur: *Muscicapa adusta* is represented by *murina* on Nyiru and by *marsabit* on Marsabit; *Zosterops senegalensis* by *jacksoni* on Nyiru and Marsabit, by *kulalensis* on Kulal. If, as seems likely, *Nectarinia reichenowi* does not occur on Kulal and Marsabit, the race *lathburyi* is endemic to Nyiru, and south to the Matthews Range.

TABLE 1
Records of Occurrence of Montane Birds

Montane Forest Species	Nyiru	Kulal	Marsabit
<i>Francolinus squamatus schuetti</i>	X		
<i>Apolopelia larvata larvata</i>		X	X
<i>Tauraco hartlaubi</i>	X	X	
<i>Pogoniulus leucomystax</i>	X		
<i>Indicator variegatus</i>	X		
<i>Alcippe abyssinica abyssinica</i>	X		
<i>Pycnonotus latirostris saturatus</i>	X		
<i>Phyllastrephus fischeri placidus</i>	X		
<i>Muscicapa adusta murina</i>	X		
<i>Muscicapa adusta marsabit</i>			X
<i>Melaenornis chocolatina fischeri</i>	X	X	
<i>Cossypha caffra iolaema</i>	X		
<i>Pogonocichla stellata guttifer</i>	X	X	
<i>Turdus abyssinicus abyssinicus</i>	X	X	X
<i>Zoothera piaggiae piaggiae</i>	X	X	
<i>Bradypterus cinnamomeus cinnamomeus</i>	X		
<i>Phylloscopus umbrovirens mackenzianus</i>	X	X	X
<i>Chloropeta similis</i>	X		
<i>Coracina caesia pura</i>			X
<i>Laniarius ferrugineus ambiguus</i>	X		
<i>Corvus rhipidurus</i>	X		
<i>Corvus albicollis</i>	X		
<i>Onychognathus walleri</i>			X
<i>Zosterops senegalensis jacksoni</i>	X		X
<i>Zosterops senegalensis kulalensis</i>		X	
<i>Nectarinia mediocris mediocris</i>	X	X	
<i>Nectarinia tacaze jacksoni</i>	X		
<i>Nectarinia famosa aeneigularis</i>	X		
<i>Nectarinia reichenowi lathburyi</i>	X		
<i>Cryptospiza salvadorii salvadorii</i>	X		
<i>Estrilda melanotis kilimensis</i>	X		
<i>Serinus dorsostriatus maculicollis</i>	X		
<i>Serinus striolatus striolatus</i>	X		



Figure 2. View of the west face of Mt. Nyiru from the vicinity of the expedition base camp at Tum, June 1968.



Figure 3. Forest cover on top of Mt. Nyiru at 8600 ft. elevation, June 1968.



Figure 4. Interior of forest on top of Mt. Nyiru at 8600 ft. elevation, June 1968.

The following description of Mt. Nyiru was written by Stager from his personal experience and observations on the Avil Expedition. From the acacia bush and grass covered plains at its west base (4000 feet [1212 m.] elevation), the Mt. Nyiru massif rises abruptly to an elevation of slightly over 9000 feet (2727 m.). The steep slopes of the mountain are clothed in heavy vegetation and are well watered (Fig. 2). From the base camp at Tum, numerous water-



Figure 5. Interior of forest on top of Mt. Nyiru at 8400 ft. elevation, June 1968.

falls were visible cascading down deep, fissurelike canyons, filled with palms (*Phoenix sp.*). The vegetation at Tum consists largely of flat-topped acacias. *Dombeya*, *Commiphora*, *Protea*, *Terminalia*, *Kigelia* and *Ficus*. The slopes above Tum have large stands of cedar (*Juniperus procera*), while the more open hillsides support numerous large Euphorbias.

The montane forest atop Mt. Nyiru is extensive (approximately 60 square miles) and magnificent. The summit of Nyiru consists of undulating hills and valleys (Fig. 3); heavily forested on the slopes of the hills, with luxuriant grassy glades or loriani in the valleys. Mt. Nyiru is covered with a primary forest untouched by axe and fired only by occasional lightning strikes. The dominant tree forms are podo (*Podocarpus milijianus*); musharagi (*Olea hochstetteri*); muzura (*Ocotea kenyensis*); mueri (*Pygeum africanum*); munyenye (*Suregada procera*); rapanea (*Rapanea rhododendroides*); and cedar (*Juniperus procera*). The forest floor is open (Figs. 4 and 5) except at the periphery of the grassy glades where undergrowth is encountered (Fig. 6). Epiphytes abound in the form of ferns and mosses of many species, and one dominant orchid, an *Angraecum* (sp.) with beautiful waxy white blossoms. The tops of some of the hills are open grassy meadows (Fig. 7) with scattered islands of bracken fern (*Pteridium aquilinum*). Mountain bamboo (*Arundi-*



Figure 6. Heavy plant growth at periphery of glade, cleared for placement of mist nets. Mt. Nyiru, 8600 ft. elevation, June 1968.

naria alpina) occurs in many areas and large patches of it were observable on the higher hillsides on the eastern portion of the range. Giant heath (*Erica arborea*) occurs on Mowongo Sowan, the highest point of Mt. Nyiru, and possibly elsewhere on the mountain. Cloud or mist forest condition prevails



Figure 7. Open park land showing islands of bracken fern and *Leonotis*, top of Mt. Nyiru, 8600 ft. elevation, June 1968.

atop Nyiru, as attested by the extensive drapery of the trees with the lichen (*Usnea sp.*) known as "old man moss" (see Fig. 3).

Mt. Nyiru is revered by the native Samburu as the home and birthplace of the tribe. It is grazed by the cattle herds of the Samburu at certain times of the year, but grazing rights are wholly restricted to the El Masula, the senior clan of the Samburu. The Samburu using the forests and glades of Nyiru practice an excellent form of forest conservation that is difficult to improve upon. Each grassy glade is the property of a sub-section of the El Masula clan, bears a particular name, and is never overgrazed. By custom, fires are taboo within the forest, as is the cutting of trees. Firewood can only be obtained from dead trees and fires are restricted to cleared areas in open ground. Manyattas (family villages) are small, moved frequently and never burned for tribal rights, as they are in the low country, at births and deaths.

The dominant mammals of the montane forest are elephant, buffalo, leopard, bush buck (*Tragelaphus scriptus*), giant forest hog (*Hylochoerus meinertzhageni*), olive baboon (*Papio anubis*), and hunting dog (*Lycan pictus*).

ANNOTATED LIST OF SPECIMENS

FAMILY ACCIPITRIDAE

Melierax poliopterus Cabanis

The pale chanting goshawk was met with at the west base of Mt. Nyiru, at 5240 feet, as it was in 1966 by the Cheney Expedition. Two males were collected on June 3 and 26, the earlier one an immature bird in molting plumage and in non-breeding condition, the later one an adult with enlarged testes. The second specimen weighed 600 grams; their stomachs contained lizards, a snake, small rodent remains, and insects.

Although no specimens were collected, the augur buzzard (*Buteo rufofuscus*) was also observed atop Mt. Nyiru on several occasions between June 9 and June 22, 1968.

Milvus migrans parasitus (Daudin)

One specimen of the yellow-billed kite was taken at the west base of Mt. Nyiru, 5240 feet, on June 26; a male with slightly enlarged gonads; weight 675 grams. Kites were common about the base camp at the west base of Mt. Nyiru and became a pest to the safari staff attempting to hang out strips of fresh meat to dry.

Several species of vultures were common on the plains at the west base of Nyiru, but the only species recorded, though not collected, on the top of the mountain was the hooded vulture (*Necrosyrtes monachus*). As many as six individuals of this species were observed at one time about our camp at 8400 feet elevation.

FAMILY PHASIANIDAE

Francolinus sephaena grantii Hartlaub

This common francolin is represented by two specimens, one of each sex, taken June 3 and 4, at the west base of Mt. Nyiru; both had enlarged gonads; the male weighed 290 grams, the female 265; stomach contents seeds and insects. This species was also taken by the Cheney Expedition in 1966, but some distance to the south, in the Karissia Hills, and south of Maralal.

Francolinus squamatus schuetti Cabanis

Three examples of this francolin were taken near the top of Mt. Nyiru, 8400 to 8600 feet, June 12 to 16. Two of them were males with enlarged gonads, the other a female with no ovarian swelling. The female weighed 300 grams, the males 450 and 475, respectively; stomach contents seeds and insects. Francolins of this species were commonly heard calling in the forest atop Mt. Nyiru and were frequently flushed in small flocks of three to four birds.

FAMILY COLUMBIDAE

Streptopelia senegalensis senegalensis (Linnaeus)

One male, testes enlarged, weight 60 grams, was taken on the west base of Mt. Nyiru, 5240 feet, on June 8. A similar one, also with large gonads, was collected in the same area in June 1966 by the Cheney Expedition. Pigeons and doves were noticeably absent in the mountain forests of Mt. Nyiru. On two occasions a dove was heard and seen in the deep forest. It resembled *Aplopelia larvata* in sound and appearance, but no specimens were secured.

Turtur chalcospilos (Wagler)

As was the experience of the Cheney Expedition, the emerald spotted dove was met with again at the base of Mt. Nyiru, where two specimens, one of each sex, were taken June 6 and 26, both with slight gonadal enlargement; weight, female 60 grams, male 55; stomach contents seeds and insects.

FAMILY MUSOPHAGIDAE

Tauraco hartlaubi (Fischer and Reichenow)

Hartlaub's turaco has a considerable elevational range, as six specimens were taken at 8400 feet on Mt. Nyiru, June 11 to 13, while two years earlier the Cheney Expedition collected a similar series in the Karissia Hills, 6500 feet, and heard, but did not obtain, others on the lower slopes of Mt. Nyiru. All the birds from the top of Nyiru had enlarged gonads, and ranged in weight from 210 to 260 grams; stomach contents berries, small fruits, and seeds.

Turacos of this species are extremely common throughout the forested top of Mt. Nyiru. During daylight hours there seemed to be no time that the calls of this bird were not ringing loudly through the forest.

Corythaixoides leucogaster (Rüppell)

One female, with slightly enlarged ovary, was taken at the west base of Mt. Nyiru, 5240 feet, June 4; weight 225 grams; stomach contents large red berries. The species had also been taken there by the Cheney Expedition in 1966. A common species in the *Acacia*, *Dombeya*, and *Commiphora* thickets around the base camp area.

FAMILY CUCULIDAE

Cuculus solitarius solitarius Stephens

The red-chested cuckoo was not met with on the higher stretches of Mt. Nyiru but two males were obtained at the west base of the mountain, 5240 feet, June 4 and 27; both with slightly enlarged testes; both weighing 60 grams; stomach contents ants and other insects.

Centropus superciliosus superciliosus Hemprich and Ehrenberg

The white-browed coucal was met with at the west base of Mt. Nyiru, 5240 feet, on June 3, when one male, with enlarged testes, was collected; weight 130 grams.

FAMILY STRIGIDAE

Otus scops senegalensis (Swainson)

Three specimens of this little owl were obtained at the west base of Mt. Nyiru, June 7, two males with slightly enlarged testes, and one female with a small ovary; weights 60 to 65 grams.

White (1965: 193) considers *caecus* and *graueri* as synonyms of *senegalensis*, and we follow him in calling our present birds by the last name. They are paler, less finely, less closely, and less darkly vermiculated than is one from Isiola, which, although coming from a locality far to the south of Nyiru, resembles the dusky, closely vermiculated Abyssinian population formerly called *caecus*. This suggests that White is probably correct in relegating all these birds to nominate *senegalensis*.

Two of the present specimens, but not the third, are somewhat larger (wings 109 mm. in the smaller male, 122 and 123 mm. in the other two birds), and all are somewhat darker, with less unmarked white in their plumage, than two others from Bura, in the lower Tana River valley, both of which have wings 115 mm. in length. These Bura examples belong to a new race Twomey and Keith have recently described as *O. s. nivosus* (Ibis, 1968: 538).

The two Mt. Nyiru males are slightly darker on the back and wings than the female. The small male, which may be subadult, has the blackish shaft streaks on the underparts less well marked than in the larger male or the female and has the gray vermiculations on the ventral feathers less spaced with white, and paler gray. Our three birds had remains of beetles, orthoptera, and other insect larvae in their stomachs.

All three of the above specimens were heard calling at night in the immediate vicinity of the base camp and were easily located by eyeshining with an electric torch.

FAMILY CAPRIMULGIDAE

Caprimulgus stellatus simplex Neumann

Two examples of this little-known nightjar were collected in the plains area near the base of Mt. Nyiru, 5000 feet, June 26; one of each sex, both in non-breeding state; weight 60 grams each; stomach contents insects. The male is in the rufescent plumage phase, the female is gray.

We allocate these specimens to the race *simplex* on geographic grounds, as we have had no comparative material available, and follow White (1965: 206), who considers the birds of central Ethiopia and southeastern Sudan, south to northwestern and central Kenya as of this subspecies.

FAMILY COLIIDAE

Colius macrourus pulcher Neumann

Two specimens, one female, one unsexed, were taken on the west base of Mt. Nyiru, 5240 feet, June 3 and 4; weight 35 and 45 grams. The Cheney Expedition had obtained this mousebird in the same area two years earlier.

FAMILY CORACIIDAE

Coracias naevia naevia Daudin

One female rufous-crowned roller, with slight ovarian enlargement, was taken on June 26, on the west base of Mt. Nyiru, 5100 feet; weight 140 grams.

FAMILY BUCEROTIDAE

Tockus flavirostris flavirostris (Rüppell)

The yellow-billed hornbill was found on the west base of Mt. Nyiru, 5240 feet, June 25, when one male with enlarged gonads was taken; weight 275 grams. Two years earlier the Cheney Expedition also collected this species there.

A young fledgling red-billed hornbill, *Tockus erythrorhynchus*, was purchased alive from a Samburu warrior on June 26 at the base camp and retained as a pet. The bird was fully fledged including the tail feathers. It was left, alive, in Kenya.

Hornbills were carefully watched for in the forests atop Mt. Nyiru. The only bird sighted was a single large hornbill, possibly a *Bycanistes* in flight over the forest top at 8600 feet elevation, June 16, 1968.

FAMILY CAPITONIDAE

Lybius leucomelas diadematus (Heuglin)

One male, testes slightly enlarged, was taken on the west base of Mt. Nyiru, 5240 feet, June 4; weight 30 grams. This species had also been collected there by the Cheney Expedition.

Lybius lacrymosus lacrymosus (Cabanis)

The Avil Expedition, like the Cheney one two years earlier, found the spotted-flanked barbet to be common on the west slope of Mt. Nyiru, 5240 feet, where, on June 4 and 7, they collected one male and two females, all in non-breeding state; weight 25 grams each.

Pogoniulus leucomystax (Sharpe)

One male, testes slightly enlarged, was taken in the montane forest on Mt. Nyiru, 8400 feet, June 12; weight 5 grams. This locality is considerably farther north than the Karissia Hills, where the Cheney Expedition collected this tinker-bird and which at that time was considered to be near the northern

limit of its range. The above specimen was the only barbet observed or heard on top of Mt. Nyiru.

Pogoniulus pusillus affinis (Reichenow)

On the west base of Mt. Nyiru, 5240 feet, one adult of each sex of the red-fronted tinker-bird were collected, June 4 and 26; the female weighed 5, the male 10 grams. These specimens agree with others from the Karissia Hills (Cheney Expedition).

Trachyphonus darnaudii bohmi Fischer and Reichenow

Two males, testes slightly enlarged, collected on the west base of Mt. Nyiru, 5240 feet, June 6 and 26; weight 30 grams each; agree with others taken there earlier by the Cheney Expedition.

FAMILY INDICATORIDAE

Indicator variegatus Lesson

One male scaly-throated honey-guide, testes slightly enlarged, was taken on the top of Mt. Nyiru, 8400 feet, on June 13. This bird is not a montane forest bird exclusively, but ranges down to sea level and up to 11,000 feet (on Mt. Elgon). The specimen weighed 50 grams.

The greater honey-guide (*Indicator indicator*) was frequently observed near the montane forest atop Mt. Nyiru, but no specimens were collected. This species is even less of a forest bird than *I. variegatus*.

FAMILY PICIDAE

Dendropicos fuscescens hemprichii (Ehrenberg)

The cardinal woodpecker is represented by one adult male, testes slightly enlarged, taken on the west base of Mt. Nyiru, 5240 feet, June 3; weight 25 grams. It agrees with the examples obtained in the same place by the Cheney Expedition, which were found (Friedmann and Stager, 1967: 21) to be *hemprichii* and not *lepidus*, although the two races probably meet near Mt. Nyiru.

Woodpeckers appeared to be totally absent from the forested top of Mt. Nyiru.

FAMILY TIMALIIDAE

Alcippe abyssinica abyssinica (Rüppell)

This little hill babbler was found to be a common bird in the montane forest on Mt. Nyiru, 8400 to 8600 feet. A series of 14 specimens, seven of each sex, was collected between June 10 and June 21; all the males and two of the females had enlarged gonads, the other five females had small or only slightly swollen ovaries. Their total weights ranged as follows: 11 weighed 20 grams apiece, 2 weighed 15, and 1 weighed 25 grams.

These birds have been compared with a series kindly loaned by the Field Museum of Natural History. They average slightly less rufescent on the back, and, to a lesser degree, on the sides and the flanks, than examples from the Kenya highlands farther south (Mt. Kenya, Kericho, Mau), but agree very closely with one from Gojam, Ethiopia. Van Someren (1922: 245), on the other hand, found that his Kenya birds (Elgon, Maraquet, Elgeyu, Molo, Londiani, and Mt. Kenya) were less rufous on the back than Abyssinian examples! All east African birds, from Ethiopia to northern Tanzania, are currently considered as nominate *abyssinica*. We concur in so allocating our Nyiru birds, which are similar to the Ethiopian specimen, the most nearly topotypical *abyssinica* we have been able to examine. The slight discrepancy between Nyiru and more southern Kenyan birds is here recorded for the benefit of those who may have to deal with examples from Mt. Kenya south to the Usambaras.

Further study with extensive material may yet reveal evidence in support of van Someren's *chyulu*, as his measurements (1939: 60) for that race not only are smaller than those of his more northern Kenya highland birds, but are smaller than those examined by us. The Nyiru males average slightly larger than birds from the Kenya highlands; wings 69 to 75 (70.85) mm. as compared with 66 to 70 (68) mm.; tail 63 to 66 (62.85) mm. as against 59 to 62 (61) mm.; culmen from distal end of nostril 7.4 to 8.0 (7.6) mm. as against 6.9 to 7.6 (7.2) mm. Strangely enough, Nyiru females do not reveal this size difference.

The map given in Moreau (1966: 193) for this species shows no localities of record between Kapenguria, near Mt. Elgon, and *ca.* 7° N latitude in Ethiopia. Mt. Nyiru thus appears to be the first station known for the species in this vast area. The species has not yet been recorded from Kulal, Marsabit, or the Matthews Range, but this does not mean that it is definitely absent in those localities.

All the present specimens had insect remains in the stomachs.

FAMILY PYCNONOTIDAE

Pycnonotus barbatus dodsoni Sharpe.

A series of seven specimens of this common bulbul from the west base of Mt. Nyiru, 5240 feet, June 4 to 26, are definitely *dodsoni*, not *fayi* (or *tricolor*), as are the birds taken in the Karissia Hills two years earlier by the Cheney Expedition. Although these races meet in the Samburu district, there is no sign of intergradation in either of these two population samples. The Nyiru birds show the distinct pectoral mottling, and the white tips to the tail feathers characteristic of *dodsoni*. Of the seven examples, five are males with testes ranging from slightly to much enlarged; the two females had slight ovarian enlargement in one, none in the other. The birds weighed 20 to 35 grams.

A common bulbul along the stream courses of the base camp area, where they were busily feeding on the fruiting *Ficus*.

Pycnonotus latirostris saturatus (Mearns)

This bulbul was found to be very numerous in the montane forest, 8400 feet, on Mt. Nyiru, and 12 males and three females were collected there, June 10 to 21. Most of the males had enlarged testes, three only slightly so, but the females showed little or no gonadal swelling.

The subspecies *saturatus* is similar to *eugenius* of western Uganda but is a little more greenish on the top of the head and on the underparts, and has slightly longer tail measurements.

Phyllastrephus fischeri placidus (Shelley)

Two specimens of this bulbul were taken in the montane forest, 8400 feet, on Mt. Nyiru, June 13 and 14. Both were males with enlarged testes, and each weighed 30 grams. They agree with good series from Mt. Kenya, Nyeri, and other highland areas of Kenya. We have seen no material from Marsabit, and cannot pass judgment on the race *marsabit*. However, the fact that van Someren described it (1932: 343) from as low as 2000 feet on Mt. Marsabit, precludes its being considered a true montane form there, and this suggests that it is probably not a local endemism, but is the same as *placidus*, as Rand (1958: 207) also considered it to be. In most areas, however, *placidus* is a bird of higher altitudes.

Phyllastrephus strepitans Reichenow

On the west base of Mt. Nyiru, 5240 feet, on June 4, one male and one female of this species were obtained, the male with slight gonadal development, the female with none. At first glance these examples seem quite distinct from other Kenyan ones, but, as pointed out in an earlier study (Friedmann, 1937: 116) and later confirmed by Rand (1958: 199), individual variation, plus the marked effects of wear and fading, make it impossible to recognize races within its range.

Our two birds weighed 20 and 25 grams, respectively.

FAMILY MUSCIPIDAE

Muscicapa adusta murina (Fischer and Reichenow)

This flycatcher was found to be common in the montane forest on Mt. Nyiru, where one male and four females, all in non-breeding condition, were collected at altitudes of from 8400 to 8600 feet, June 14 to 24.

We are advised by M. A. Traylor that in the forthcoming account of the Muscipidae in the continuation of Peters' Check-list, the race *interposita* is to be included in *murina*, thus differing from the conclusions of White (1963: 8), who recognized *interposita*. This leaves us with two races to consider. The subspecies *marsabit*, described from the mountain of that name, is said to occur on the higher parts of the mountains of northern Kenya from Moyale and Marsabit to Laikipia, Kapenguria, Mt. Elgon, and eastern Uganda, intergrad-

① 3 13 7 ——— 11

ing extensively with *murina* in the central Kenya highlands. On geographic grounds we would expect the Mt. Nyiru birds to be *marsabit*, but they agree with examples of *interposita* (now *murina*) from the Karissia Hills, not with *marsabit*, supposedly somewhat rusty colored. They are also less richly colored than one bird from Molo (topotypical *interposita*).

Van Someren (1932: 259) reported that *marsabit* is smaller than *murina*, his 13 examples from Mt. Marsabit having wing lengths of 56 to 63 mm., mostly 56 to 57 mm. Our Nyiru birds measure 60 to 64 mm., and thus average larger than van Someren's topotypes of *marsabit*.

While *marsabit* is said to intergrade extensively with *murina* in the central Kenya highlands, it seems to us that the integration begins as far north as Nyiru and this, together with the wing lengths of our series, causes us to prefer to consider the "intergrades" north to Nyiru as more properly referable to *murina*. Otherwise we would be inclined to question the distinctness of *marsabit*. This conclusion leads to the implication that this little flycatcher is one of the very few species of montane forest birds in which the Marsabit and Nyiru populations are racially distinct. We have not seen any material from Laikipia, Kapenguria, or Elgon.

Melaenornis chocolatina fischeri (Reichenow)

The white-eyed slaty flycatcher was found to be numerous in the montane forest on Mt. Nyiru, 8400 feet, where three males and one female were collected June 10 to 15. One of the males showed gonadal enlargement; the other birds did not. They weighed 20 to 25 grams. This species is part of the montane forest avifauna but is not restricted to it, and occurs also at lower elevations, as in the Karissia Hills, where the Cheney Expedition collected several examples.

Melaenornis pammelaina (Stanley)

Two males, testes slightly enlarged, were taken on the west base of Mt. Nyiru, 5240 feet, June 6. The species had been found there by the Cheney Expedition as well, and apparently is well established there.

Batis molitor (Hahn and Kuster)

This little chin-spot flycatcher was found at 5240 feet, on the west base of Mt. Nyiru, where two males, testes slightly enlarged, were taken June 3 and 4.

Terpsiphone viridis ferreti (Guerin)

Two specimens of the paradise flycatcher were collected at 5240 feet on the west base of Mt. Nyiru, June 4 and 24; neither (one of each sex) was in breeding condition; the male weighed 10, the female 15 grams.

FAMILY TURDIDAE

Cossypha caffra iolaema Reichenow

The Kenya robin-chat was found both at the west base of Mt. Nyiru, 5240 feet, and near the montane forest at its top, 8400 to 8600 feet. Specimens from the two areas are alike. All in all, some seven examples were obtained, five males and two females, all with small or only slightly enlarged gonads, June 6 to 26; weights 20 to 25 grams. Robin-chats were not found within the forested areas proper, but appeared to be common in the bracken fern and *Leonotis* thickets of the larger meadows.

Cichladusa guttata rufipennis Sharpe

The spotted morning warbler was found to be common at the west base of Mt. Nyiru, 5240 feet, and four specimens were collected there, one male with slightly enlarged testes and one female with a large ovary on June 4, one whose sex was unrecorded on June 6, and another female with a small ovary on June 26; weights 20 to 30 grams; stomach contents small beetles and other insect remains.

These four specimens are very slightly duller, less rufescent above, than others examined from Bura, in the lower Tana Valley, and from Lake Magadi, in southern Kenya, but are *rufipennis* and not *guttata*. The Samburu area is close to where the ranges of these two subspecies meet.

Pogonocichla stellata guttifer (Reichenow and Neumann)

The Kenya white-starred bush robin was found to be a very common bird in the montane forest, 8400 to 8600 feet, on Mt. Nyiru, and eight specimens, three males and five females, all in non-breeding condition, were obtained June 11 to 18; weights 15 to 20 grams.

Mt. Nyiru is a new locality for this small thrush. In Moreau's map (1966: 191) no locality records are indicated for it north of the Cherangani Mountains, although he does list it from Kulal a few pages later (195). These bright colored bush robins appeared to be unusually tame about our camp atop Mt. Nyiru and frequently foraged openly about our tents.

Turdus abyssinicus abyssinicus Gmelin

This thrush was found to be very common in the montane forest on top of Mt. Nyiru, 8400 to 8600 feet, where a series of nine specimens, four males, three females, and two unsexed birds, were collected June 10 to 20. The birds showed a range from non-breeding condition to much gonadal enlargement; their weights ran from 50 to 65 grams.

Turdus tephronotus Cabanis

One female, with only slight ovarian enlargement, was taken at 5240 feet on the west base of Mt. Nyiru, on June 25; weight 55 grams.

Zoothera piaggiae piaggiae (Bouvier)

This montane forest thrush is represented in the collection by one male, with slightly enlarged testes, 8400 feet, Mt. Nyiru, June 17; weight 45 grams; stomach contents small snails. The specimen agrees with others from Kapenguria and from Mt. Moroto.

FAMILY SYLVIIDAE

Bradypterus cinnamomeus cinnamomeus (Rüppell)

The bracken warbler was common in the montane woodlands zone on Mt. Nyiru, 8400 to 8600 feet; nine specimens, five males and four females, were obtained June 10 to 18; three of the males and one of the females had enlarged gonads, the others, including some immature birds, did not. The birds weighed 15 to 25 grams (average 19 grams).

These examples are uniformly darker, less rufous above, than ten others examined from Mt. Kenya, the west Kenya highlands, Aberdares, and Mt. Moroto in northeastern Uganda. The same difference in dorsal coloration holds for the immature as well as for the adult birds. The Mt. Nyiru birds do not agree with the description of *elgonensis*. However, it may be noted that Granvik (1923: 239-240) found his Elgon specimens inseparable from nominate *cinnamomeus*.

In an earlier study Friedmann (1937: 167-170) had a much longer series, totalling 79 specimens, ranging from Ethiopia to northeastern Tanzania (Usambara Mountains) and found the variation in coloration and size to be inconstant enough to cast doubt on the validity of any races in this large area. Van Someren (1932: 373) attempted to explain the situation by stating that this warbler shows variation, "... due to different ecological factors, at varying altitudes, producing either a paleness or an intensity of coloration, not bound by geographical distribution in its usually accepted sense." At our request M. A. Traylor kindly compared the present Nyiru examples with the extensive material in the Field Museum of Natural History and concluded that there were no recognizable local races in eastern Africa, that *mildbreadi* of Ruwenzori was a darker and more brownish, less reddish subspecies, but that the Nyiru birds, which on geographic and on presumed genetic grounds could not possibly be the same as the Ruwenzori population, actually agreed more closely with that group than with nominate *cinnamomeus*! It may be noted, in this connection, that Chapin (1953: 437) recognized *chyulensis* as a very dark race, so the question of its relation to the Nyiru population is thereby raised. It seems best, at least in the present state of our understanding, to consider all east African birds part of a variable nominate race.

For the benefit of students who may wish to study the bracken warbler in further detail, it may be recorded that the Nyiru birds, besides being darker, are also generally longer winged than are the others examined from Mt. Kenya, Aberdares, and Moroto; males—wing 65.5 to 66 as against 60 to 63

mm.; females—60 to 62 as against 54 to 58 mm. The tails are long in Nyiru males (71 to 76 as against 61 to 71 mm. in others), but not in the Nyiru females (61 to 69 as against 61 to 68 mm.).

Phylloscopus umbrovirens mackenzianus (Sharpe)

The brown woodland-warbler was found to be a common species in the montane forest on Mt. Nyiru, 8400 feet, June 10 to 15, during which time six specimens, two males with enlarged testes and four females with small ovaries were collected; weight 5 grams in each case.

Moreau's map (1966:192) indicates no locality records for this species between the vicinity of Kapenguria and about 7° N in Ethiopia, but the bird does occur on Nyiru, Kulal, and Marsabit; Moreau lists it from the last named locality (1966: 194) although the record is not shown on his map.

Sylvietta whytii jacksoni Sharpe

One female in non-breeding condition, west base of Mt. Nyiru, 5240 feet, June 4; weight 5 grams. The red-faced crombec had been found there in 1966 by the Cheney Expedition as well.

Camaroptera brevicaudata griseigula Sharpe

As was the experience of the Cheney Expedition in 1966 in the Karissia Hills, to the south, the Avil Expedition also found this gray-backed warbler common at the west base of Mt. Nyiru, 5240 feet, where 11 specimens were taken between June 3 and 25, six males and five females, with gonads varying from small to enlarged; weights 10 to 15 grams. Van Someren (1922: 228) had recorded specimens of this warbler from the N'ziu River, Mt. Nyiru.

Cisticola nana Fischer and Reichenow

This tiny grass warbler was met with at the west base of Mt. Nyiru, 5240 feet, on June 8, when one female, ovary slightly enlarged, was collected; weight 5 grams.

Cisticola cinereola Salvadori

Two males of this grass warbler were collected on the west base of Mt. Nyiru, 5240 feet, June 6 and 7; both had only slight testicular enlargement; weight 15 grams.

Chloropeta similis Richmond

This yellow flycatcher-like warbler proved to be common in the montane forest on Mt. Nyiru, 8400 to 8600 feet, June 10 to 18, when six specimens, five males and one female, all in non-breeding state, were collected. They all have the top of the head greenish, like the rest of the underparts, and are thus *similis* and not a race of *C. natalensis*.

Mt. Nyiru is the northernmost locality in Kenya from which the species has yet been recorded; it is known farther to the west, as far north as the Imatong Mts., southern Sudan.

FAMILY CAMPEPHAGIDAE

Coracina caesia pura (Sharpe)

The gray cuckoo-shrike was found in the montane forest on Mt. Nyiru, at 8400 feet, on June 25, when an adult female with an enlarged ovary was taken; weight 50 grams.

FAMILY DICRURIDAE

Dicrurus adsimilis divaricatus (Lichtenstein)

The common drongo is represented by two specimens, both males with slight gonadal enlargement, west base of Mt. Nyiru, 5240 feet, June 3; weight 30 grams each.

FAMILY LANIIDAE

Eurocephalus rüppelli Bonaparte

One female, ovary slightly enlarged, west base of Mt. Nyiru, 5240 feet, June 7; weight 55 grams.

Dryoscopus gambensis malzacii (Heuglin)

This puff-backed shrike was found at the west base of Mt. Nyiru, 5240 feet, June 3 and 4, one non-breeding female and one male with enlarged gonads; weight 30 grams each. This species was already known from the Samburu district (Karissia Hills).

Tchagra cruentata hilgerti (Neumann)

One male, testes slightly enlarged, west base of Mt. Nyiru, 5240 feet, June 25; weight 50 grams; others taken in the same place in 1966 by the Cheney Expedition.

Tchagra jamesi jamesi (Shelley)

The Avil Expedition found this bird at the west base of Mt. Nyiru, 5240 feet, June 4, one male with slight testicular swelling; weight 30 grams.

Laniarius ferrugineus ambiguus Madarasz

This race of the boubou shrike was numerous in the montane forest on Mt. Nyiru, 8400 to 8600 feet, June 12 and 16, two males and three females, with gonads ranging from small to large; weight 50 grams in each case.

Laniarius funebris funebris (Hartlaub)

The slate-colored boubou shrike was very common at the west base of Mt. Nyiru, 5240 feet; five males and two females, all in non-breeding state, taken June 3 to 24; weight 30 to 49 grams. Also found in that place in 1966 by the Cheney Expedition.

Lanius collaris humeralis Stanley

One male, testes slightly enlarged, west base of Mt. Nyiru, 5240 feet, June 3; weight 35 grams.

Nilaus afer minor Sharpe

One female in non-breeding state was taken on the west base of Mt. Nyiru, 5240 feet, June 6; weight 20 grams.

FAMILY PARIDAE

Parus afer barakae Jackson

The gray tit was found at the west base of Mt. Nyiru, 5240 feet; one female, ovary not enlarged, June 3; weight 10 grams.

Parus albiventris Shelley

One male white-breasted tit, with small testes, was collected on the west base of Mt. Nyiru, 5240 feet, June 4; weight 20 grams.

FAMILY REMIZIDAE

Anthoscopus musculus (Hartlaub)

One male, testes small, west base of Mt. Nyiru, 5240 feet, June 6; weight 5 grams.

FAMILY CORVIDAE

Corvus rhipidurus Hartert

Two male fan-tailed ravens, both with enlarged gonads, were obtained on Mt. Nyiru, one at the west base, 5240 feet, and one on the top, 8400 feet, June 4 and 13. The species was already known from the Samburu District.

Corvus albicollis Latham

This is another raven that ranges from the lower plains around Mt. Nyiru to the top of the mountain; one male, with large testes, was taken at 8400 feet, June 20. In 1966 the Cheney Expedition collected one at the west base of the mountain.

Corvus capensis Lichtenstein

A single specimen of the Cape rook, a male in non-breeding condition.

was taken at the west base of Mt. Nyiru, June 6; weight 450 grams. Rooks of this species were extremely abundant in the plains area west of Mt. Nyiru, where flocks of 200 birds were not an uncommon sight.

FAMILY STURNIDAE

Lamprotornis chalybeus cyaniventris (Blyth)

Common at the west base of Mt. Nyiru, 5240 feet; two specimens of each sex, the males with large, the females with small, gonads, June 3 and 4; weight 75 and 95 grams.

Spreo superbus (Rüppell)

This starling is a common bird in the Samburu District; one of each sex was taken on the west base of Mt. Nyiru, 5240 feet, June 3; both in non-breeding state; weight 55 and 60 grams.

Buphagus erythrorhynchus (Stanley)

One male, testes enlarged, west base of Mt. Nyiru, 5240 feet, June 24; weight 45 grams.

FAMILY ZOSTEROPIDAE

Zosterops senegalensis jacksoni Neumann

This white-eye was very common on top of Mt. Nyiru, 8400 to 8600 feet (2545 to 2606 m); 13 specimens, six males with enlarged gonads, seven females, all in non-breeding state, were collected, June 10 to 21; weights 10 to 15 grams.

Moreau (1957: 361-362) had seven specimens from the top of Mt. Nyiru (9000 feet) and found that they were a little larger and less dully colored than *jacksoni* from Marsabit and Laikipia, and approached *kulalensis* in this respect. However, the last named race, found only on Kulal, has the abdomen grayish, not yellow-green as in the Nyiru and Marsabit specimens. The present birds are certainly more properly treated as *jacksoni*, although they are duller below, less yellowish green, more grayish green, than typical *jacksoni*. White (1963: 89-92) also concluded that the populations on Nyiru, Marsabit, and the Matthews Range were best included under that name. Moreau found his seven Nyiru birds to be variable; the present 13 are quite uniform.

FAMILY NECTARINIIDAE

Nectarinia mediocris mediocris (Shelley)

This sunbird was found to be very common in the montane forest on Mt. Nyiru, 8400 to 8600 feet, and 13 specimens were collected June 10 to 19, eight males and five females, with gonads ranging from small to much enlarged; all the birds weighed 5 grams each. The present species occurs north to Mts. Nyiru and Kulal; it has not yet been reported from Marsabit.

Nectarinia tacazze jacksoni Neumann

A common bird in the montane forest on Mt. Nyiru, 8400 to 8600 feet; eight specimens, five males with enlarged testes and three females in non-breeding state, were collected June 10 to 19; weights 10 to 15 grams.

Tacazze sunbirds frequented the more open areas of the mountain top rather than the glades and were most commonly encountered around the bracken fern and *Leonotis* thickets.

Nectarinia mariquensis osiris Finsch

The Avil Expedition found this sunbird on the west base of Mt. Nyiru and collected two males and one female there, June 3 and 24; the female in breeding condition, one male with enlarged, the other with small, testes. Two years earlier the Cheney Expedition found the mariqua sunbird very numerous in that same area.

Nectarinia famosa aeneigularis Sharpe

Three males, all with enlarged testes, collected at 8600 feet, June 17 to 19, attest to the presence in numbers of this race of the malachite sunbird in the montane forest zone of Mt. Nyiru. It has not yet been reported from Kulal or Marsabit, and because it is a conspicuous bird in the field the lack of records from those two mountains may be indicative of its absence there.

Malachite sunbirds were the least abundant of the four species of the family present on the top of Mt. Nyiru and, when encountered, proved to be exceedingly wary. When approached they would immediately take wing and fly great distances rather than just move a few yards to a new perch as did the other species.

Nectarinia reichenowi lathburyi Williams

One of the prizes of the present collection is a superb series of 22 specimens of this race of the golden-winged sunbird. The subspecies was described from the summit of Mt. Garguez, 7100 feet, in the Matthews Range, and to date is known only from that area and Mt. Nyiru, about 60 miles (100 km.) to the north. All but two of 15 males, and four of the seven females collected had large gonads; the birds weighed from 10 to 15 grams.

Golden-winged sunbirds were first observed on the west slope of Mt. Nyiru at 7800 feet elevation as our pack train neared the western crest of the mountain. The species proved to be exceedingly abundant in all of the forest glades and small openings in the forest. It was equalled in numbers only by *Nectarinia mediocris*.

These large sunbirds obviously serve as an important pollinator of the large orange-blossomed mint (*Leonotis nepetifolia*), a common herb of the forest glades and meadows atop Mt. Nyiru. The short velvet-textured feathers covering the forehead of this sunbird are separated by a median bare patch



Figure 8. Drawing showing forehead of the golden-winged sunbird (*Nectarinia reichenowi*) in contact with the corolla of *Leonotis nepetifolia*; also view of head showing bare medial patch.

2 mm wide and extending posteriorly from the culmen, often as much as 8 mm. It was noted that this bare groove in all specimens collected was filled with a bright red-orange pollen, especially in the male birds. The upper lip of the corolla of *Leonotis* is long (3.8 cm) and decurved, the four stamens and anther extend under this protective lip. Observation of this species of sunbird feeding on *Leonotis* showed that as the bird thrust its long decurved bill deep into the flower, the upper lip of the corolla covered the median area of the bird's forehead, thus permitting the groove to fill with pollen (Fig. 8). Examination of the foreheads of specimens of the other two large sympatric species, *Nectarinia jacazze* and *N. famosa*, reveals no such bare area on the forehead. It is doubtful that the bare patch is acquired through abrasion, as an adult male of *T. reichenowi* collected on Mt. Nyiru on October 11, 1955, by J. Smart, has the entire head in pin feather molt and the bare median patch is without any trace of feathering.

FAMILY PLOCEIDAE

Dinemellia dinemelli dinemelli (Rüppell)

The white-headed buffalo-weaver is a common and conspicuous bird in the bushveld of northern and eastern Kenya. On the west base of Mt. Nyiru, 5240 feet, two males were collected on June 3; one with small, one with enlarged, testes; weights 70 and 75 grams.

Plocepasser mahali melanorhynchus Bonaparte

One male with enlarged testes, one female with slight ovarian enlargement, west base of Mt. Nyiru, 5240 feet, June 3 and 7; weight 40 and 49 grams. The species was found to be as common there as it was two years earlier by the Cheney Expedition.

Passer griseus gongonensis (Oustalet)

The gray-headed sparrow is represented in the collection by one immature male, taken on June 7, west base of Mt. Nyiru, 5240 feet; weight 30 grams.

Ploceus velatus uelensis (Neumann)

One male, testes slightly enlarged, west base of Mt. Nyiru, 5240 feet, June 4; weight 25 grams. Also found there by the Cheney Expedition.

Malimbus rubriceps leuconotus (Müller)

Two specimens, one of each sex, with slight gonadal enlargement, west base Mt. Nyiru, 5240 feet, June 3; weight 25 grams each. Recorded from there by the Cheney Expedition as well.

FAMILY ESTRILDIDAE

Cryptospiza salvadorii salvadorii Reichenow

The crimson-wing was very abundant in the montane forest, 8400 to 8600 feet, on Mt. Nyiru, where 12 specimens were collected June 10 to 19, five males and seven females, with gonads ranging from not at all to much enlarged; weights 10 to 15 grams. The absence of records from Kulal seems likely to be corrected in the future, considering its abundance on Nyiru. Its absence from Marsabit may be due to the lesser altitude attained by that mountain.

These birds are less different from a series of *kilimensis*, from central Kenya highlands, than the description of that race would suggest. There is some variation in the Nyiru birds, and since White (1963: 178) found *salvadorii* to intergrade with *kilimensis* as far north as Mt. Uruguess, the Nyiru birds may also be intergrades in varying degrees. No topotypical Ethiopian *salvadorii* have been available for comparison.

Estrilda melanotis kilimensis (Sharpe)

A bird of the montane forest edges, but not wholly restricted to the true montane zone. This yellow-bellied waxbill was found in the montane zone, 8500 to 8600 feet, and also on the west base, 5240 feet, of Mt. Nyiru, June 16 to 25. A total of seven birds, five males, two females, with gonads ranging from small to enlarged, were taken, weight 5 grams in all cases.

Due to an unfortunate *lapsus*, specimens of this species collected by the Cheney Expedition in the Karissia Hills (Friedmann and Stager, 1967: 32) were reported under the name *Estrilda paludicola*. They and the present Nyiru specimens help fill the geographic gap between the ranges of *kilimensis*, otherwise known north only to Mt. Elgon and the south-central Kenya highlands, and of *quartinia* of Ethiopia.

Estrilda ianthinogaster (Reichenow)

Two males, one adult, one immature, west base of Mt. Nyiru, 5240 feet, June 7 and 24; weight 10 grams each; also found there by the Cheney Expedition.

FAMILY FRINGILLIDAE

Serinus dorsostriatus maculicollis Sharpe

One female, ovary not enlarged, was taken in the montane zone, 8600 feet, on Mt. Nyiru, June 17; weight 10 grams.

Serinus striolatus striolatus (Rüppell)

This streaky seed-eater was found to be abundant in the montane zone, 8400 feet, on Mt. Nyiru, and 11 specimens were taken, June 10 to 18, six males and five females, mostly in breeding condition; weights 15 to 25 grams. This species has not yet been recorded from Kulal or Marsabit. The Cheney Expedition did find it in the Karissia Hills.

LITERATURE CITED

- CHAPIN, J. P. 1953. The birds of the Belgian Congo, Part 3. Amer. Mus. Nat. Hist., Bull., 75 A: 1-821.
- DALE, I. R., AND P. J. GREENWAY. 1961. Kenya Trees and Shrubs. Buchanan's Kenya Estates Ltd., Nairobi: 1-654.
- FRIEDMANN, H. 1937. Birds collected by the Childs Frick expedition to Ethiopia and Kenya Colony, Pt. 2. U. S. Natl. Mus., Bull., 153: 1-506.
- FRIEDMANN, H., AND K. E. STAGER. 1967. Results of the 1966 Cheney expedition to the Samburu district, Kenya. Ornithology. Los Angeles Co. Mus., Contrib. Sci., 130: 1-34.
- GRANVIK, H. 1923. Contributions to the knowledge of the east African ornithology. Journ. für Ornith., 71, Sonderheft: 1-280.
- . 1934. The ornithology of north western Kenya Colony with special regard to the Suk and Turkana districts. Revue Zool. et Bot. Africaines, 25: 1-193.
- GYLDENSTOLPE, N. 1924. Zoological results of the Swedish expedition to central Africa, 1921. Birds. K. Svenska Vetenskapsakad. Handl., (3) 1, (3): 1-326.
- JACKSON, F. J. (completed by W. L. Sclater) 1938. The birds of Kenya Colony and the Uganda Protectorate. London: Gurney and Jackson. 3 vols., 1592 pp., 24 pls.
- MOREAU, R. E. 1957. Variation in the western Zosteropidae (Aves). British Mus. (Nat. Hist.), Bull., Zool., 4, 311-433.
- . 1966. The bird faunas of Africa and its islands. Academic Press, New York. 424 p.
- NEUMANN, O. 1903. Ueber einige afrikanische Vögel. Ornith. Monatsberichte, 11: 87-91.
- RAND, A. L. 1958. Notes on African bulbuls. Fieldiana, Zool., 35: 145-220.
- SCLATER, W. L. 1930. Systema Avium Aethiopicarum. London: Taylor and Francis. pt. 2: 305-922.
- SHARPE, H. B. 1930-31. The birds of Marsabit mountain, Kenya Colony. Bateleur. 2: 44-47, 102-107; 3: 9-14, 35-39, 97-103.
- TWOMEY, A., AND S. KEITH. 1968. New distributional records of some east African birds. Ibis, 110: 537-548.
- VAN SOMEREN, V. G. L. 1922. Notes on the birds of East Africa. Novitates Zool., 29: 1-246.
- . 1931. New races of birds from eastern Africa. East Africa and Uganda Nat. Hist. Soc., Journ., no. 37: 193-197.
- . 1932. Birds of Kenya and Uganda, being addenda and corrigenda to my previous paper in "Novitates Zoologicae." xxix, 1922. Novitates Zool., 37: 252-380.
- . 1939. Birds of the Chyulu Hills. East Africa and Uganda Nat. Hist. Soc., Jour., 14: 15-129.
- WHITE, C. M. N. 1963. A revised check list of African flycatchers, tits, tree creepers, sunbirds, white-eyes, honey eaters, buntings, finches, weavers and waxbills. Lusaka, Govt. Printers. 218 p.
- . 1965. A revised check list of African non-passerine birds. Lusaka. Govt. Printers. 299 p.
- WILLIAMS, J. G. 1948. A new race of white eye from Kenya Colony. British Ornith. Club, Bull., 68: 101-102.
- . 1956. A New Golden-winged Sunbird from Kenya. British Ornith. Club, Bull., 76: 136-139.

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